MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
Jennifer Granholm, Governor • Steven Chester, Director

REMEDIATION AND REDEVELOPMENT DIVISION
INTERNET: http://www.michigan.gov/deqrrd

INFORMATION BULLETIN #3

SOUTH MACOMB DISPOSAL AUTHORITY LANDFILLS 9 & 9A SUPERFUND SITE

Macomb Township, Michigan

April 2005

Introduction

The Department of Environmental Quality (DEQ) has prepared this bulletin to keep community members informed on the progress of cleanup actions at the 150-acre South Macomb Disposal Authority (SMDA) Landfills 9 & 9A Superfund site, located at 21100 24 Mile Road in Macomb Township, Michigan. Previous bulletins (April 2002 and December 2003) provided information on the cleanup progress at this site.

For a map of the site, please refer to Figure 1. A *Site History* is also provided at the end of this bulletin. Additional information may be obtained from the DEQ project manger, or by visiting the local information repository for key site documents (see back page).

Cleanup Progress

Leachate Collection, Treatment, and Disposal: The SMDA continues to operate the leachate collection and treatment system. The system has been operating since 2002. Since 2002, more than 35 million gallons of leachate contaminated water has been pumped through the treatment system and discharged to the sanitary sewer system.

The treatment system primarily consists of a clarifier to treat the water to the pre-treatment standards set by the Detroit Water and Sewerage Department (DWSD). The water is monitored frequently prior to discharge to the sewer, as required by the permit issued by the DWSD.

Per a Consent Decree with the State of Michigan, the SMDA has four years from the startup of the leachate collection and treatment system (i.e., until November 2006) to demonstrate "capture" of the full extent of the groundwater contamination. This amount of time was allowed due to the high level of water in the landfills, and the expectation that it will take a few years of pumping to "dewater" the waste.

The SMDA is monitoring the groundwater quarterly (four times a year). Monitoring data indicates that some progress is being made toward dewatering of the waste. Additional data will be gathered and evaluated on a quarterly basis to assess progress toward achieving the cleanup goals.

Monitoring data indicates that additional monitoring wells are needed to the northeast of the site to completely define the extent of contamination exceeding drinking water standards. One such monitoring well was installed in March 2005. Additional monitoring wells will be installed later in 2005.

Gas Venting and Monitoring: The SMDA's contractor continues to monitor for methane gas in the subsurface around the site. Decaying waste in the landfill generates methane, which is an explosive gas. Methane has the potential to migrate underground through soil pore space. The major concern with methane generated by landfills is the potential for it to migrate in the subsurface to buildings where it has a potential to accumulate and pose an explosion hazard. Landfill regulations do not allow landfill gases to reach the landfill property boundary at levels at or above the lower explosive limit. At the SMDA Sites 9 & 9A, numerous gas vents have been installed in the landfill to allow landfill gases to vent harmlessly to the atmosphere. Also, the perimeter leachate collection trench has been vented to allow gases to escape before reaching the landfill property boundary (see Figure 2). Gas probes have been installed around the perimeter of the SMDA Site 9 & 9A to monitor the level of methane. These gas probes were initially scheduled to be monitored four times a year.

In February 2003 one gas probe on the north side of Site 9 detected gas at close to half the lower

explosive limit. Six additional vents were installed in the area in March 2003 and the levels of methane reaching this area rapidly decreased. In 2004 landfill gas was again detected above the lower explosive limit in gas probes north of Site 9 & 9A. A gas venting trench was installed north of Site 9 and additional gas vents were installed north of Site 9A. Also, in 2004, additional subsurface gas probes were installed to define the extent of the subsurface gas that exceeds the lower explosive limit. Landfill gas was detected under the property north of Site 9 in a very small area very close to the property boundary (within 75 feet). No residences or other buildings are located in the immediate vicinity of the gas detections.

Currently landfill gas is being monitored on a monthly basis. The most recent monitoring event (March 2005) detected high levels of landfill gas at the northern property line but did not detect landfill gas above the action level in any of the gas probes north of the landfill property. The DEQ will continue to closely monitor the landfill gas situation to ensure all necessary steps are taken to prevent the off-site migration of landfill gas.

Landfill cover: The initial landfill cover improvements were substantially completed by October 2002. Additional soil was added to the landfill cover to ensure a minimum of two feet of clay cover over all areas of waste. Also, the landfill cover was graded to improve and control the run-off of precipitation.

Due to settlement in some areas of the landfill, additional soil was placed on the cover in 2003 and 2004. Additional regrading and seeding of the cover is expected to occur in 2005.

Groundwater Extraction: The cleanup plan requires that a groundwater extraction well system be installed after an evaluation of the initial performance of the leachate collection system. Construction of this extraction well system has been delayed to allow time for the evaluation of the leachate collection system on the larger groundwater plume. Installation of the extraction well system is expected in the spring of 2005. The initial groundwater extraction system is anticipated to consist of two extraction wells located northeast of the landfills, just south of 24 Mile Road. Additional extraction wells may be needed in the future.

Project Oversight: The DEQ will continue to closely monitor the site cleanup efforts of SMDA to ensure that the specific performance standards contained in the Consent Decree are met. The basic performance standard for the leachate collection system is to remove water from the waste and along the property boundary to prevent the further loss of leachate to the groundwater. The basic performance standard for the groundwater extraction system is to clean up the impacted groundwater beyond the landfill property to the state's drinking water standards for protection of human health.

Site History

The SMDA Landfill Site 9 & 9A occupies approximately 150-acres on the south side of 24 Mile Road west of Card Road. The site was utilized for the disposal of municipal wastes from 1968 to 1975.

The groundwater beneath and adjacent to the site has become contaminated by wastes leaching from the landfill. In 1983 a few residential wells became contaminated. The state provided bottled water from 1983 until 1988 when the township and state extended a municipal water system to the affected residences. Some homes in the area still rely on groundwater for their drinking water and the homes with wells in the immediate area will continue to be sampled by the Macomb County Health Department on an annual basis.

Contaminants in the groundwater include ammonia; volatile organic compounds, such as methylene chloride, vinyl chloride, and methyl ethyl ketone; and metals, such as iron and manganese. These contaminants have been found at concentrations greatly exceeding unrestricted residential cleanup levels beneath the landfill and have been found at concentrations slightly above the unrestricted residential cleanup levels in areas beyond the landfill property. If left unabated, the concentration of these chemicals may cause health problems for a person who consumes this water over many years.

The site was placed on the Superfund National Priorities List by the United States Environmental Protection Agency (U.S. EPA) in 1986. The U.S. EPA completed a remedial investigation in 1991.

In the 1980s the SMDA constructed a series of trenches to collect contaminated water and leachate from the landfills. Until 2002 when a new system began operation, the SMDA pumped water and leachate from these old trenches into trucks and sent it off-site for treatment and disposal. The SMDA performed extensive investigations and studies in the 1990s.

On June 26, 2002, the SMDA, with its member cities, and the State of Michigan, signed and the court approved a Consent Decree that requires SMDA to implement response activities at the SMDA Landfills 9 & 9A Superfund site.

The Consent Decree requires the SMDA to implement a Remedial Action Plan (RAP) which includes:

- Construction of improvements to and maintenance of a landfill cover system.
- Installation and operation of a new leachate collection system and a groundwater extraction system.
- Construction and operation of a water treatment and disposal system.
- Installation of a landfill gas venting and monitoring system.
- Provision of alternate water for affected residents, as necessary.
- Long-term monitoring of the groundwater.
- Placement of deed restrictions on the landfill properties to reliably restrict exposures to substances that exceed appropriate criteria.
- Provision of water softeners or extension of water supplies to address exceedances of aesthetic criteria in residential wells.
- Performance of additional response actions, as necessary to meet the prescribed performance standards.

Overall, the major potential human health risks posed by the site are: 1) the risk associated with the possible human consumption of contaminated groundwater; 2) direct contact with the waste materials in the landfill; 3) the potential for contamination to adversely affect surface water, such as the McBride Drain located south of the site; and 4) the risk associated with the potential subsurface migration of landfill gas at levels that may pose an explosion hazard if the gas accumulates in structures, such as a basement.

The RAP mitigates these risks by: 1) capturing and treating contaminated groundwater to restore the groundwater resource; 2) maintaining an adequate cover over the waste materials; and 3) collecting contaminated leachate before it can migrate to surface waters (leachate is a term for water that has become contaminated by percolating through waste in the landfill); and 4) venting landfill gas on the landfill property. The RAP also requires contingency actions if the initial measures are not sufficient to meet the cleanup goals.

For More Information

Project Manager: For additional information or to be added to the site mailing list please contact Mr. David Kline, DEQ Project Manager, at this address:

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Information Repository: A copy of the Consent Decree with accompanying RAP and other key documents pertaining to this site are available for review at the Clinton-Macomb Public Library in Macomb (address and hours listed below).

Clinton-Macomb Public Library, North Branch
16800 24 Mile Road, Suite 2
(just west of Romeo Plank Road)
Macomb, Michigan 48042

586-226-5080

Library Hours:

Monday-Thursday: 9am-9pm
Friday-Saturday: 9am-6m

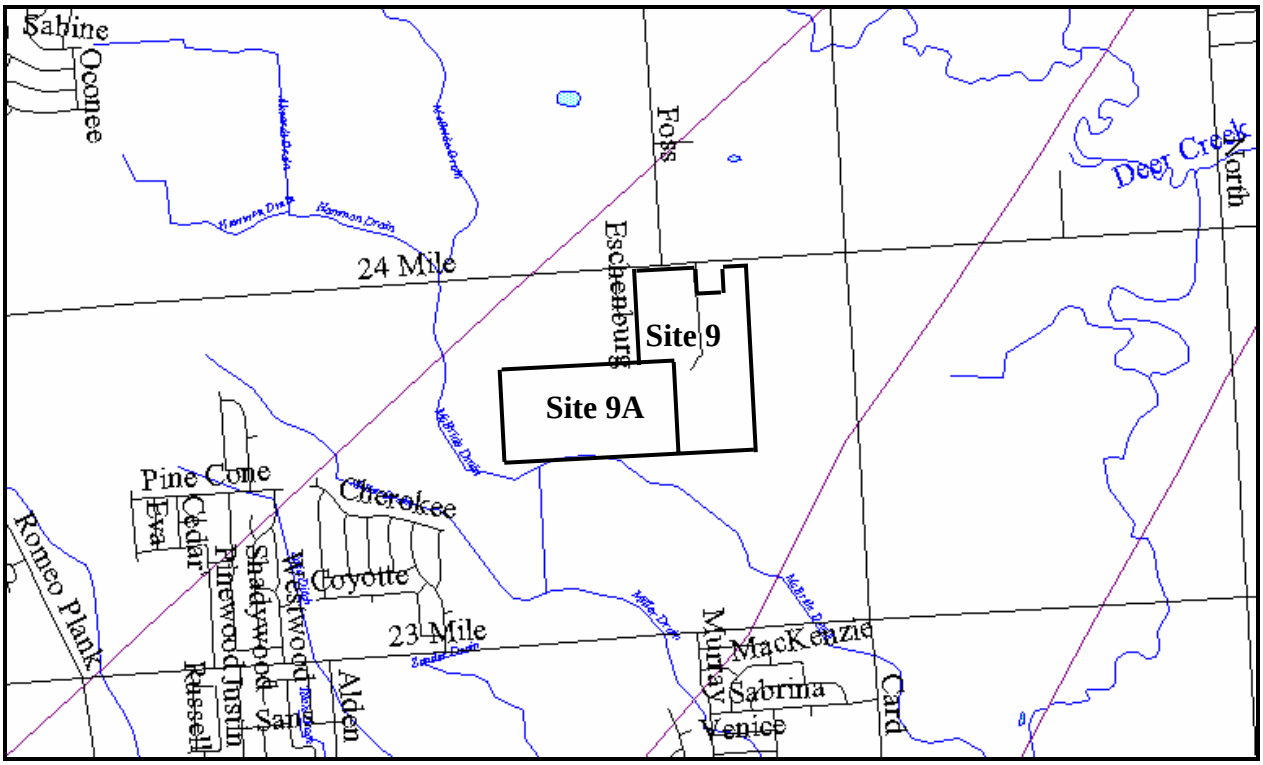

Figure 1 - South Macomb Disposal Authority Landfills 9 & 9A Site Location

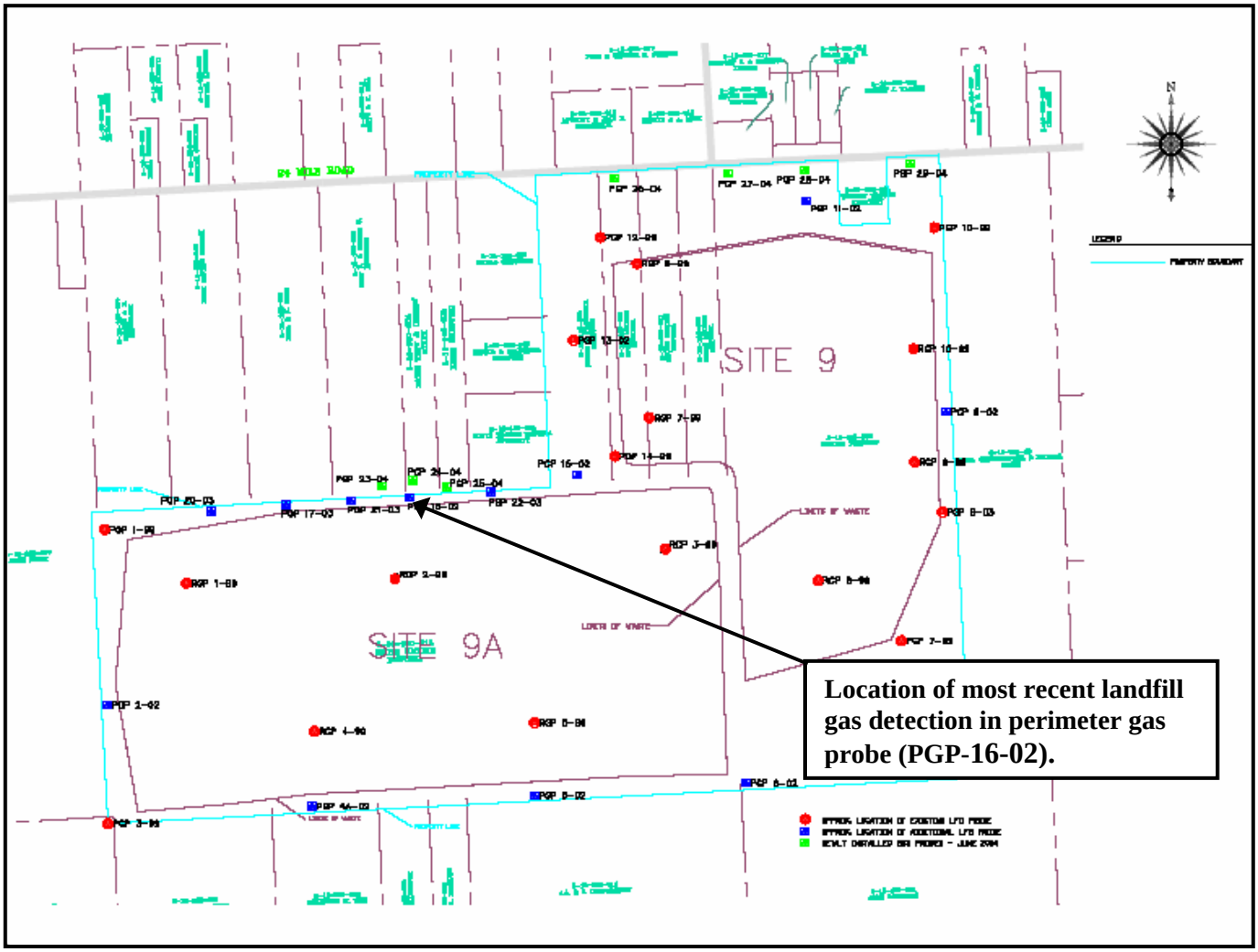

Figure 2 – Landfill Gas Probe Locations